Improvements in Communication Process in Real Projects using Social Network

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Abstract *- This paper presents an experimental study of integrating a social network to a virtual learning environment. This was done in a real project for a software factory as a tool for collaborative work, media and assist in monitoring and evaluation of activities. The social network organizes all the interactions of users, recording information about the process of serving customers and exchange experiences. A network system consists of technology to the academic environment and to the practice of software development. Students will be together in a virtual space developing projects with real clients.*

Keywords: Real project; social network; software factory; communication; computer engineering

1 Introduction

One of the dilemmas is in the process of learning how to integrate theory and practice. Students have variety of learning styles. The experience of different learning serves to maximize the educational process. In this context we have to use real projects in the learning process. The real projects addressing different learning styles and provide integrated learning situations [1].

The conduction of real projects by undergraduate students provides the possibility of the student experience the practical benefits of the principles of software engineering. The practice of centralizing the development process in user enables greater contact of the student with the real needs of the future users of the system. This means gains in the quality of system functionality and the importance of good communication.

Information technology and communication are possibilities of interaction in the educational system. Social networking has the characteristic of web 2.0. Emerged concepts of human relations in everyday systems. Subject studied by sociologists and anthropologists on aspects of everyday life for many cultures. Social networks propagated on the Internet through various softwares like Facebook, Youtube, Twitter, among others.

The web 2.0 tools in the educational context rescue the interaction, cooperation, collaboration and knowledge sharing in the learning process. The challenge is to incorporate learning activities tools and concepts with other functions. Social networks can be adapted to promote new strategies.

In implementing a collaborative system that consists of characteristics of a portfolio tool for organizing student activities, receive feedback from other students and teacher. And the system can still be used for the appearance of a social network and can be directed to the learning process. There is need for research to understand group behavior in the use of this tool.

In education uses various information and communication technologies to mediate the learning process. Some surveys are conducted in the field of architecture and to use social networking platform Moodle [2].

The research started from the selection of social networking software for the educational context. Went through integration steps, design, and implementation methodologies. Developed a pilot project with seven undergraduates course of Computer Engineering who participated in the software factory. The purpose of this research was to analyze the system of communication that happens in real projects in the context of a software factory with the use of ICT.

The paper is organized as following way: section 2 presents the related work. Section 3 discusses case study: design software with real factory. In section 4, results and discussion. In section 5 conclusion and future work.

2 Related Work

Garrison [3] submitted three groups of graduate students to conduct real projects. In this study, students faced the same problems encountered by professionals, mainly: follow the principles of software engineering; discover the importance of good communication between staff; and developing products for real customers. Upon completion of the development of software, students showed what techniques were used in software projects and lessons learned. In general, students: felt motivated to deliver a good product, worked hard to overcome the challenges of learning and interpersonal relationships; felt and realized gain experience for their résumés.

Hoxmeir and Lenk [4] present the methodology of service-learning as an opportunity for students of information systems to develop and implement real-world systems to nonprofit agencies and government. In these activities, students can actively evaluate and analyze complex taxpayers associated with areas of understanding and to design and implement real-world solutions. As a result students have a deeper

technical knowledge learned, improved interpersonal communication skills, greater efficiency in project management skills and an appreciation of the technical knowledge of information systems for the company.

Soares [5] also describes the approach made use of practical work in teams in the discipline of software engineering for undergraduate students in Computer Science. Students have to design software systems simple proposing solutions, analyze and critically evaluate methodologies, techniques and tools. With the implementation of the projects, the students could still have the idea of learning by identifying their problems and correcting its conceptual flaws.

Ordieres, Gonzáles and Albas [6] presented monitoring skills acquisition by a team of students in engineering graduates who were working on projects and who are inexperienced in the area of project management. The experiment aimed to increase the level of skills acquired using a web-based portfolio structure to help reinforce how important different management approaches can result in final products and how important it is to keep integration throughout the project. As a main conclusion, students support the experience of how they perceive reality as a reality immersive enabling them to acquire specific competence. Additionally, students observed the adoption of a working methodology specifies that integrates the work of others.

Nygard et al. [7] conducted a study to assess the potential benefits of social networking tool Ning for collaboration within teams while carrying out a major course project. The work of each team required social and ethical analyses that pertain to a computing or internet related topic. Some of the teams utilized the Ning social networking tool as the primary communication and collaboration vehicle and others used more conventional means, such as face-to-face meetings. Teams with little diversity among its members usually work well in group projects, while team more diverse, often have difficulty. Aiming to evaluate the Ning social network as a tool to increase the performance of heterogeneous teams in order to match with the performance of homogeneous teams, the results indicated that students did not show a particularly favorable attitude towards the use of Ning, although this has proven useful to stimulate the performance and success of the project, the learning curve to master the Ning and heavy workload of the project itself dampened the enthusiasm of students when using the tool.

3 Case Study: Factory Design Software with Real Projects

The Software Factory concept emerged in the mid-80s through the project "Fifth Generation Project" developed by Japanese who have taken teams of highly trained insertion and use of metrics to measure improvements in the development process and software quality [8].

As a complement / improve this model, we sought to adopt the User-Centered Design (UCD). This process provides several moments of interaction with each artifact generated in order to make the client more participatory and decision-making power. In this sense, communication becomes the primary resource for understanding the project to be developed and the progress of each process step.

Since it reading email is still one of the main activities performed on the Internet (http://pewinternet.org/Reports/2011/Search-and-email.aspx), the members of the Software Factory use e-mail and face meetings for communication and exposure of tempos of research, ie, that happens through these means monitoring by the coordinator of the project and the client. Furthermore, email is used for sharing information about programming languages, software engineering and related topics to the themes of the research [9].

These activities provide software factory that has characteristics of active learning [8]. This type of learning is the incentive to search for new knowledge to solve problems, the starting point of the project, aiming to interfere positively on the skills of planning, organization, execution, those involved [10].

At the time of research, the factory had seven ongoing projects. And knowing the relationship of communication and collaboration that is needed in the development of research and practices of everyday life among the team members, it was proposed to study the implementation of a platform composed of web 2.0 tools to be used by the plant's human resources along with customers.

4 Results and Discussion

The first stage of the implementation process of the social network had external variables that hindered the events expected as ideal. But we know that this deployment experience in the context of a software factory reflects situations that happen in several companies that innovate in the use of information and communication technologies in order to enhance collaboration between the actors.

Despite having a team of factory reduced number of external customers still small, the process suffered impacts from the main feature of this academic factory software, which is software developments being made in decentralized locations. There was the challenge to gather all team members.

At the meeting presential social network was presented as a new possibility of communication with the supervisor and clients. And all members were invited to initiate access to the system. Rescued that the social networking site Facebook, more accessible at the time, emerged from academia to the global context, and that the implementation of the social network along with the virtual learning environment allows the recording of the collaborative process that occurs between

all members team this tool and insert the customer, who can follow the step-by-step software development.

Team members were instructed to use the tools, organizing the portfolio on the project for which each is responsible. And after use to answer a questionnaire to assess the use of this new tool. And as was to document the practice of social networking by staff members of the software factory, analyze the responses in the survey. On the social network the item ease of access (25% excellent and 75% good), flexibility (50% excellent, 25% good and 25% satisfactory); system in general (75% good and 25% satisfactory) and process interaction or collaboration (75% good and 25% fair). The most positive responses demonstrates the acceptance by the implantation of the system.

The system records a group created - Software Factory - which contains fourteen users ranked institutions: client or moodle. There are four customer profiles, two administrators, seven students and a supervisor of the software factory. With the encouragement of participation were created 49 pages on the projects over a period of five days of collection of statistical data. We use Moodle that the two institutions associated with social network validates this new login system using the same user. The client institution is required to other participants of real projects that are not registered in the virtual environment.

Statistical data of the most visited pages and commented are also provided by the system. The most visited page and commented that it was the content includes the description of research activities and implementation of the social network. You must create tutorial to facilitate use of technology, despite the students being the field of computing.

The project has the real focus of customer involvement in software development. Using social network facilitates the communication process between the customer and factory software. Having a social networking system that enables the recording and monitoring will facilitate the involvement of customers with projects. Developers there is the possibility of having a faster feedback to proceed in steps of software development. Besides facilitating the monitoring of performance of students by teachers. The social network brings the possibility of greater customer participation to the project.

5 Conclusion and Future Work

This article presents a pilot project deploying a social network in academia seeking to provide better performance of real projects that are designed for students who are part of a software factory. The use of a social network provides greater organization to interactions.

The results on the social network showed that the system is simple to learn and help in the process of monitoring, evaluation and collaboration of activities performed on the stage of the software factory. The real projects earn an additional tool to assist in the communication process. The social network that is already known to a context of society returns to use in academia. This deployment extends the space for collaborative learning. The team shares information from software developments.

In future work, we plan to evaluate the system in a consolidated environment software factory and the proposed expansion to the college academic environment, aiming to provide a collaborative environment among students and teachers, groups currently use e-mail discussion groups

And future work include evaluating the use of the system and interactive design. Observe the behavior of users in the system. If changes are needed will be made

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